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EXAMINER	
ANGEBRANNDT, MARTIN J	

ART UNIT	PAPER NUMBER
1756	

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/699,878

Applicant(s)

KATO ET AL.

Examiner

Martin J. Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 6-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 6-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

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1. The response of the applicant has been read and given careful consideration. Response to the arguments and amendments appears after the first rejection to which they are directed. The basis for the correction to the thickness of the reflective layer in the specification and claims is accepted. **The terminal disclaimer for 6,770,346 filed on 9/22/06 are improper. They have not been executed by an attorney of record in the oath, please resubmit these with a signature form one of those listed on page 4 of the Oath.** The terminal disclaimer for copending Application No. 11/130568 (2005/0254410) is approved and obviates that rejection. There is no longer a need to file a TD for 6,790,592 based upon the amended language.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1,3,6-9 and 12-13 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Harigaya et al. '346

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Example 23 teaches polycarbonate substrates coated with a 70 nm ZnS-SiO<sub>2</sub> layer, a 18 nm Ge<sub>5</sub>Ga<sub>3</sub>Sb<sub>76</sub>Te<sub>14</sub>Mn<sub>2</sub> recording layer, a 15 nm ZnS-SiO<sub>2</sub> layer, a 4 nm SiC layer, a 140 nm Ag layer and a 5-10 micron UV cured layer. Examples 19 and 22 are similar. The recording power is 19 mW (16/54). This is then initialized using an 850 mW laser at a velocity of 3.5 m/s and used at a recording velocity of 17.5 m/s. (16/10-65, table 1 in column 17-18, see also tables 3 and 4). The upper dielectric layer may be 5-50 nm (11/19-25). The Sb content can be as high as 81% (6/40-49). The lower dielectric layer can be 35-200 nm (10/4). The recording layer thickness is preferably 10-30 nm (8/12). The upper dielectric layer can be 8-20 nm (11/20) and the second upper dielectric layer can be Si, SiC, ZrO<sub>2</sub>, MgO, TiO<sub>x</sub> or Y<sub>2</sub>O<sub>3</sub> or the like with a thickness of 2-10 nm. (11/56-21).

In cited example 23, x is 0.03, y is 0.05, x+y = 0.08 which is less than 0.1, z is 0.826 (applicant calculates 0.8444) and Mn is present at 0.02. Further, the thickness of the recording, upper protective ZnS-SiO<sub>2</sub> layer, Silicon containing layer (SiC/Si) and reflective layer are similar. The use of an SiC layer or an Si layer is discussed in the prepub of the instant specification at [0063]. The Pw power in the prior art is 19 mW [0072] at a linear velocity of 17 m/s while that used in the examples of the instant application is 33 mW [0110] at a velocity of 28.8 m/s. The exposure in the prior art is  $19 \text{ mW}/17 = 1.11$ , and for the inventive examples is 1.15.

In the instant application, the media have the structure of polycarbonate substrates coated with a 75 nm ZnS-SiO<sub>2</sub> layer, a 16 nm Ge<sub>5</sub>Ga<sub>3</sub>Sb<sub>76</sub>Te<sub>14</sub>Mn<sub>2</sub> recording layer, a 18 nm ZnS-SiO<sub>2</sub> layer, a 4 nm Si layer, a 140 nm Ag layer and a 8-14 micron UV cured layer, is initialized using a 900 mW laser beam (1 x 90 microns) at 2 m/s and uses a 35 mW laser operating at 789 nm to

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write/erase at up to 28.8 m/s . The cited example 23 comprises a teaches polycarbonate substrate coated with a 70 nm ZnS-SiO<sub>2</sub> layer, a 18 nm Ge<sub>5</sub>Ga<sub>3</sub>Sb<sub>76</sub>Te<sub>14</sub>Mn<sub>2</sub> recording layer, a 15 nm ZnS-SiO<sub>2</sub> layer, a 4 nm SiC layer, a 140 nm Ag layer and a 5-10 micron UV cured layer from the reference has a 2 nm thicker recording layer, a 3 nm thinner upper dielectric layer and uses a SiC layer, rather than an Si layer. The initialization uses a 850 mW laser at a velocity of 3.5 m/s and a 19 mW laser operating at 657 nm. Based upon the composition and the thickness of the layers, the examiner holds that the medium of the prior art would be able to record information at a linear velocity between 28.8 and 33.6 m/s when exposed at a higher laser power. As the cited prior art and the instant application are commonly assigned, the applicant may have performance data on hand to refute this. The rejection stands.

The applicant argues that no compositions within the range recited are taught. The examiner directs the applicant to the table on page 8 of the response, specifically example 23. The examiner obtained a value of 0.826  $[(0.76)/(1-0.08)]$  which equals  $0.76/0.92$ ] while the applicant calculates 0.8444. Both values are bounded by the claims and the applicant may wish to check their math.

5. Claims 1,3,6-9 and 12-13 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Harigaya et al. EP 1260973.

Example 23 teaches polycarbonate substrates coated with a 70 nm ZnS-SiO<sub>2</sub> layer, a 18 nm Ge<sub>5</sub>Ga<sub>3</sub>Sb<sub>76</sub>Te<sub>14</sub>Mn<sub>2</sub> recording layer, a 15 nm ZnS-SiO<sub>2</sub> layer, a 4 nm SiC layer, a 140 nm Ag layer and a 5 micron UV cured layer. ([0170-0175],table 3) Examples 19 and 22 are similar. The recording power is 19 mW. This is then initialized using an 850 mW laser at a velocity of 3.5 m/s and used at a recording velocity of 17.5 m/s. ([0152], table 1 on page 14, see also tables 3

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and 4). The Sb content can be as high as 81% [0042]. The lower dielectric layer can be 35-200 nm [0077]. The recording layer thickness is preferably 10-30 nm [0054]. The upper dielectric layer can be 5-50 nm [0089] and the second upper dielectric layer can be Si, SiC, ZrO<sub>2</sub>, MgO, TiO<sub>x</sub> or Y<sub>2</sub>O<sub>3</sub> or the like with a thickness of 2-10 nm. [0094-0097].

In cited example 23, x is 0.03, y is 0.05, x+y=0.08 which is less than 0.1, z is 0.826 (applicant calculates 0.8444) and Mn is present at 0.02. Further, the thickness of the recording, upper protective ZnS-SiO<sub>2</sub> layer, Silicon containing layer (SiC/Si) and reflective layer are similar. The use of an SiC layer or an Si layer is discussed in the prepub of the instant specification at [0063]. The Pw power in the prior art is 19 mW [0072] at a linear velocity of 17 m/s while that used in the examples of the instant application is 33 mW [0110] at a velocity of 28.8 m/s. The exposure in the prior art is  $19 \text{ mW}/17 = 1.11$ , and for the inventive examples is 1.15. Based upon the composition and the thickness of the layers, the examiner holds that the medium of the prior art would be able to record information at a linear velocity between 28.8 and 33.6 m/s when exposed at a higher laser power. As the cited prior art and the instant application are commonly assigned, the applicant may have performance data on hand to refute this.

6. Claims 1,3 and 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harigaya et al. EP 1260973.

It would have been obvious to one skilled in the art to use a thinner composite dielectric layer, such that the ZnS-SiO<sub>2</sub> layer is 5 nm in thickness with a reasonable expectation of forming a useful optical recording medium.

The examiner notes that the term "oxide layer" is held to embrace any layer including an oxide.

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The applicant argues common assignment. The rejection now applied the EP equivalent which is not applied under 102(e) and so cannot be obviated merely on the basis of common assignment.

7. Claims 1,3,6-9 and 12-13 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Suzuki et al. JP 2002-347349 (machine translation attached), in view of Takahashi et al. '355.

Example 8 has a polycarbonate substrate, a 60 nm ZnS-SiO<sub>2</sub> layer, a 14 nm Ge<sub>3</sub>Ga<sub>5</sub>Sb<sub>77</sub>Te<sub>15</sub> recording layer, a 18 nm ZnS-SiO<sub>2</sub> layer, a 4 nm SiC layer, a 140 nm Ag layer and a UV cured layer.[0056,0058] The other examples and Comparative examples are similar. The addition of Ag and Ge is disclosed [0007]. In cited example 8, x is 0.05, y is 0.03, x+y=0.08 which is less than 0.1, z is 0.836. Further, the thickness of the recording, upper protective ZnS-SiO<sub>2</sub> layer and reflective layer are similar. The Pw power in the prior art is 15 mW [0050] at a linear velocity of 18 m/s while that used in the examples of the instant application is 33 mW [0110] at a velocity of 28.8 m/s. The exposure in the prior art is 15 mW/18 = 0.83 and for the inventive examples is 1.15. Based upon the composition and the thickness of the layers, the examiner holds that the medium of the prior art would be able to record information at a linear velocity between 28.8 and 33.6 m/s when exposed at a higher laser power. As the cited prior art and the instant application are commonly assigned, the applicant may have performance data on hand to refute this.

Takahashi et al. '355 teach GeSbTe recording layers with Mn, Sn, and Ag as additives in amounts of less than 5% (7/37-46 and 8/55-59).

It would have been obvious to modify the cited examples by adding various additives in amounts of 1-4% of Mn to the recording layers in place of Ag, based upon the teachings of the

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addition of Ag, Sn or Mn, by Takahashi et al. '355 with reasonable expectation of forming a useful optical recording medium.

8. Claims 1,3,6-9 and 12-13 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Suzuki et al. JP 2002096560, in view of Takahashi et al. '355.

Example 3 has a polycarbonate substrate, a 180 nm ZnS-SiO<sub>2</sub> layer, a 20 nm Ge<sub>3</sub>Ga<sub>6</sub>Sb<sub>70</sub>Te<sub>21</sub> recording layer, a 20 nm ZnS-SiO<sub>2</sub> layer, a 120 nm Ag layer and a UV cured layer [0015-0018]. The addition of Ag and Sn is disclosed [0012]. The upper dielectric layer may be 5 to 45 nm thick [0098]. The Sb can be up to 85% and Te is remainder as set forth at [0008].

It would have been obvious to modify the cited examples by increasing the amount of Sb to 77% , decreasing the Te to 14% based upon the teaching at [0008] of Suzuki et al. JP 2002096560 and add Mn in amounts of 1-4% to the recording layers in place of Ag, based upon the teachings of the addition of Ag, Sn or Mn, by Takahashi et al. '355 with reasonable expectation of forming a useful optical recording medium.

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned



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with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-8 and 10-13 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 6,770,346. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant application and the cited patent include coverage for GeGaSbTeMn based optical recording media.

The terminal disclaimers are defective as discussed above.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebrannndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Martin J Angebranndt  
Primary Examiner  
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